REMARKS

Amendments

Amendments to the Claims

Applicants have amended independent claims 1, 10, 21 and 24 and dependent claims 3, 6, 15, 25 and 26 to more particularly point out what Applicants regard as the invention. No new matter has been added as a result of these amendments as the subject matter is present in the Specification as originally filed, at least at Paragraphs 23 and 44. Claims 14 and 22 have been canceled.

Rejections

Rejections under 35 U.S.C. § 103(a)

Claims 21 and 23 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,502,205 to Yanai et al. (hereinafter "Yanai") in view of U.S. Patent No. 6,516,327 to Zondervan et al. (hereinafter "Zondervan"). Applicants respectfully submit that claim 21 has been amended to include the limitations of dependent claim 22 which was deemed to be allowable if rewritten in independent form. Therefore Applicants respectfully submit that claims 21 and 23 are allowable and request that the rejection under 35 U.S.C. § 103(a) be withdrawn.

Claims 1, 3, 4, 6, 10, 12, 14-15, and 24-27 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yanai in view of U.S. Patent No. 5,636,360 to Courts et al. (hereinafter "Courts"). Applicants respectfully request withdrawal of these rejections because the cited references fail to disclose all of the elements of the claims.

Yanai is directed to an asynchronous remote data mirroring system. The system 210 includes a primary data storage system 214 and a secondary data storage system 246. Each of the data storage systems includes a volume 295, 296. In the volume 296 of the secondary data storage system 246, both log file 293 and data file 294 correspond to the log file 291 and the data file 292 of the volume 295 on the primary data storage system 214.

As amended, the claims recite the second storage server writing the data access request to a second non-volatile log in a second non-volatile random access memory in the second storage server ***and*** into a file stored in a mass storage device managed by the second storage server. In Yanai, both the log file 293 and the data file 294 are stored on the same volume 296. Neither the log file 293 nor the data file 294 are implemented in non-volatile random access memory on the secondary data storage device. One of ordinary skill in the art would not interpret the volume 296 in Yanai as a non-volatile random access memory because the volumes of Yanai are mass storage devices such as hard disks. As is known, mass storage devices suffer from a risk of losing data modified since the last time it was stored in the volume if a system failure occurs. In contrast, storing data in a non-volatile random access memory prevents data loss after a system failure. Furthermore, Yanai does not disclose that a write request is sent from the primary data storage system 214 to the secondary data storage system 216 where it is written into a non-volatile random access memory and also into a data file 294 in a mass storage device such as volume 296. Thus, Yanai does not disclose all the elements of the claims.

Courts does not cure the deficiencies of Yanai. Courts merely discloses a method for preventing overwriting cache buffer transaction entries until corresponding log buffer entries have been copied to a log partition of the disk. Courts does not disclose writing the data access request to a non-volatile log in a non-volatile random access memory in the second storage server ***and*** into a file stored in a mass storage device managed by the second storage server. Accordingly, Yanai in view of Courts does not teach or suggest the invention as claimed.

Additionally, Applicants claim causing the second storage server to apply the data access request in the file stored in the mass storage device to a second volume when the first non-volatile log in the first storage server becomes full. As admitted in the Office Action, Yanai does not disclose this claimed element. Instead, the Office Action alleged that Courts teaches a method of copying the contents of a log buffer to a log partition when the log buffer is full. Applicants respectfully submit that copying the contents of a log buffer to a log partition when the log buffer is full is different from the claimed method, as recited in independent claim 1. In fact, Courts fails to disclose a second storage server which manages a second volume that is an image volume of a first volume managed by a first storage server. Moreover, Courts does not disclose or suggest causing a second storage server to write the data access request to an image volume in response to the log buffer in the first storage server becoming full, as claimed.

Therefore, Courts fails to disclose the elements of the claims set forth above. Accordingly, Applicants respectfully request that the rejection of claims 1, 3, 4, 6, 10, 12, 14-15, and 24-27 under 35 U.S.C. § 103(a) be withdrawn.

Allowed Claims

Applicants thank the Examiner for indicating that claims 17, 19 and 20 are allowed.

SUMMARY

Claims 1, 3, 4, 6-8, 10, 12, 14, 15, 17 and 19-27 are currently pending and claims 17, 19, 20, 21 and 23 are allowable. In view of the foregoing amendments and remarks, Applicants respectfully submit that the pending claims are in condition for allowance. Applicants respectfully request reconsideration of the application and allowance of the pending claims.

If the Examiner determines the prompt allowance of these claims could be facilitated by a telephone conference, the Examiner is invited to contact Sue Holloway at (408) 720-8300 x3476.

Deposit Account Authorization

Authorization is hereby given to charge our Deposit Account No. 02-2666 for any charges that may be due. Furthermore, if an extension is required, then Applicants hereby request such extension.

Respectfully submitted,

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